Chapter 3

The Market Forces

Learning Objectives :

After learning this chapter you will understand :

- **Market.**
- **Demand.**
  - ✓ **Meaning of Demand,**
  - ✓ **Features of Demand.**
- **Law of Demand.**
  - ✓ **Meaning and Assumptions of Law of Demand,**
  - ✓ **Demand Schedule and Demand Curve,**
  - ✓ **Exceptions to Law of Demand**
- **Substitute and Complimentary Goods.**
- **Demand of Normal and Inferior Goods.**
- **Shifts in Demand Curve.**
- **Movement along the Demand Curve.**
- **Supply and Law of Supply.**
- **Shifts in Supply Curve.**
- **Movement along the Supply Curve.**
- **Equilibrium.**

Basic Concepts

Q1. What is Market?

Ans. Meaning of Market : A market is group of buyers and sellers of a particular good or service. The buyers as a group determine the demand and the sellers as group determine the supply. While parties may exchange goods and services by barter, most markets rely on sellers offering their goods or services (including labor) in exchange for money from buyers. It can be said that a market is the process by which the prices of goods and services are established.

Q2. What is Meaning of Competition?

Ans. Competition in economics is a term that encompasses the notion of individuals and firms striving for a greater share of a market to sell or buy goods and services. The existence within a market for some good or service of a sufficient number of buyers and sellers such that no single market participant has enough influence to determine the going price of the good or service is competition. Competition is seen as a state which produces gains for the whole economy, through promoting consumer sovereignty. It may also lead to wasted (duplicated) effort and to increased costs (and prices) in some circumstances. In a small number of goods and services, the cost structure means that competition may be inefficient. These situations are known as natural monopoly and are usually publicly provided or tightly regulated. The most common example is water supplies.

Demand

Q3. Explain the meaning of 'Demand'?

Ans. Meaning of Demand : The term demand in economics is used in a special sense. Ordinarily, the terms want, desire and demand are used in the same sense. But in economics all the three terms have different meaning.

Desire : Desire is just a wish or longing for a commodity without support of means to buy that. It is not a demand and does not cause any transaction in the market.

Want : If the wish for commodity has the support of means but lacks the willingness to spend those means for such commodity then it becomes a want.

Demand : Demand is an effective desire for which one has means and willingness to spend those means. In other words, A desire backed by purchasing power becomes demand. demand refers to the willingness and the ability to buy a commodity. Actually, Demand for a commodity is that quantity of such commodity which a consumer is willing to buy at a particular price and during a particular period of time.

Definitions of Demand :

In the words of **Dr. Veena Anstey**, "The demand for a particular good is the amount that will be purchased at a given price at a given time."

According to **Benham**, "The demand for anything at a given price is the amount of it which will be bought per unit of time at that price."

Features of Demand : The main features of demand for a commodity are :

(i) **Utility of the Commodity :** Only those goods are demanded which yield positive utility to the consumer.

(ii) **Desire :** The person should have desire to buy the commodity.

(iii) **Effective Demand :** It Means demand should have the support of means and willingness to part with those means to buy the commodity.

(iv) **Flow Concept :** Given quantity of goods are demanded per unit of time.

(v) **Relationship with Price :** It means a given quantity of goods is demanded at a particular price, as the price changes demand also undergo a change.

Demand and Quantity Demanded : It is Important to understand the distinction between the concepts of demand and quantity demanded as they often confused with each other. Demand represents the whole demand schedule or curve and shows how price of a good is related to quantity which the consumers are willing and able to buy, other factors which determine demand being held constant. On the other hand, quantity demanded refers to the quantity which the consumers buy at a particular price. The quantity demanded of a good varies with changes in its price; it increases when price falls and decreases when price rises.

Q4. Differentiate between desire and demand for a commodity?

Ans. Desire is just a wish for a commodity and a person can desire a commodity even if he does not have the capacity to buy it from the market whereas demand is desire backed by purchasing power, that is, to say whatever an individual is willing to buy from the market in a given period of time at a given price he has the capacity and willingness to spend means for that. A poor person can desire to own a car but that will not becomes a demand because he does not have the purchasing power to buy a car from the market.

Q5. What are the determinants of quantity demanded?
Explain the effects of the following on the demand for a commodity :

(a) A rise in the price of a substitute good.

(b) A fall in the income of the consumer if the commodity is an inferior good.

Ans. Demand is a multivariate relationship, i.e., it is determined by many factors simultaneously. Some of the most important factors determining demand for a commodity of an individual household are its own price, price of related goods, consumers income, tastes and preferences etc. The main determinants of demand are :

(i) Price of the commodity,
(ii) Prices of related goods,
(iii) Income of consumers,
(iv) Tastes and preferences,
(v) Exogenous factors such as weather,
(vi) Size of the population, and
(vii) Income distribution.

Relationship of Determinants with Demand

Change in

1. **Price of a Commodity :** Inverse Relationship
2. **Price of a Complimentary Good :** Inverse Relationship
3. **Price of a Substitute Good :** Direct Relationship
4. **Income of the Consumer**
   (a) **Necessaries :** Independent
   (b) **Comforts & Luxuries :** Direct Relationship
   (c) **Inferior Goods :** Inverse Relationship
5. **Tastes & Preferences :** Direct Relationship

The relationship between the factors affecting demand for a commodity and quantity demanded is explained below :

(i) **Price of a Commodity :** The price is the most important factor determining the demand. Normally, demand for a Commodity increases at a lower price and decreases at a higher price. Which means there exists a inverse relationship between price and demand (we will study this later in the Law of Demand). As shown in the following diagram as the price increased from P to P_1 the quantity demanded fell from Q to Q_1. Further as the price fell from P to P_2 the Quantity demanded increased from Q to Q_2.

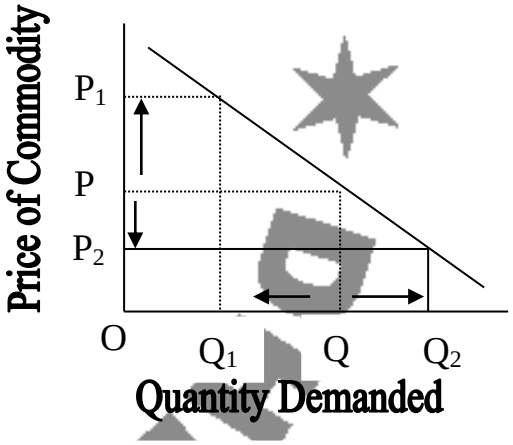
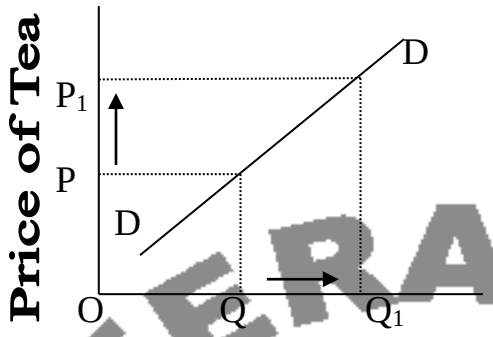


Figure 1 : Price of a Commodity

(ii) **Price of related goods :** Price of related goods also have a great impact on the demand for a Commodity. Related goods are of two types viz., Substitute (or Competitive) goods and Complimentary Goods. The effect of price of both of these types of goods is discussed separately as under :

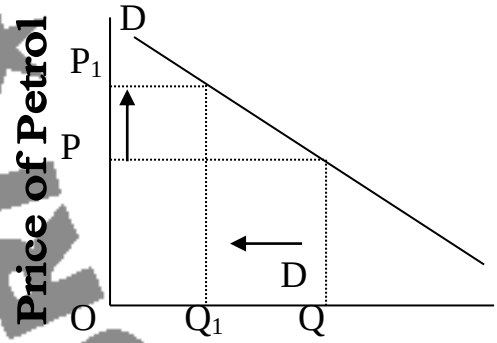
(a) **Substitute Goods:** Substitute goods are those goods which can be used in the place of each other to satisfy a given demand e.g. – Tea and Coffee. In

such goods there exists a direct relationship between the price of one commodity and quantity demanded for another commodity, *i.e.*, increase in price of commodity results in the increase in demand for other. As shown in the following diagram as the price of tea increased from P to P_1, the quantity demanded for coffee increased from Q to Q_1.



Quantity Demanded for Coffee

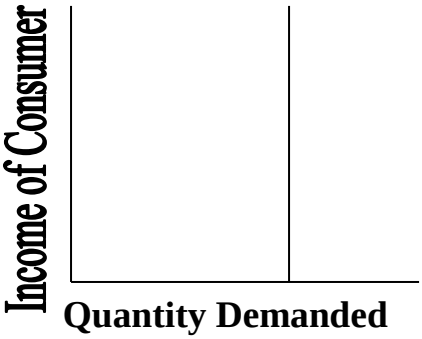
(b) **Complementary goods :** Complementary goods are those goods which are used together to satisfy a given demand. In such goods there exists an inverse relationship between the price of one commodity and quantity demanded for another commodity, *i.e.*, increase in price for one commodity results in decrease in demand for other Commodity. e.g. – Car and Petrol. As shown in the following diagram as the price of Petrol increased from P to P_1, the quantity demanded for car decreased from Q to Q_1.



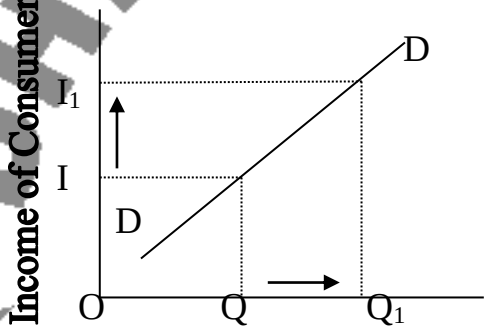
Quantity Demanded for Cars

(iii) **Income of Consumer's :** Generally, increase in consumer's income results increase in the purchasing of consumer's goods. But, this is not true for all conditions we can observe it in these three conditions :

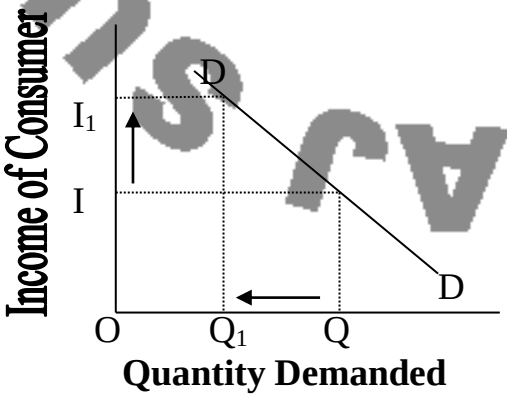
(a) **Necessary Goods :** Basic necessities like foot, water, salt, clothing are always necessary in any condition whether the consumer has adequate income available or not. The quality of these necessities may change with the increase of income but demand would be more or less same. SO we can say that the demand of necessities is independent of income of the consumers and diagrammatically it represents a vertical line with reference to income of the consumer as shown below :



(b) **Luxurious Goods :** Demand for luxurious Goods like Car, AC, LCD TV etc is directly related with the income of the consumers, *i.e.*, as the income of the consumer increases the demand for these commodities also increase. As shown in the following diagram as the Income of the consumer increased from I to I_1, the quantity demanded for Luxurious goods also increased from Q to Q_1.



(c) **Inferior or Giffen goods :** Inferior or Giffen goods are those goods whose consumption decreases with the increase in the income of the consumer. *e.g.*, – wheat instead of jwar, Full cream milk instead of toned milk. As shown in the following diagram as the Income of the consumer increased from I to I_1, the quantity demanded for Inferior goods decreased from Q to Q_1.



Note **IT is important to note down that all Giffen goods are essentially inferior but it is not necessary that all inferior goods are Giffen goods.**

(iv) **Taste and Preferences :** Demand for a commodity depends upon tastes and preferences also we can include habit of customer also which influence demand. We know that advertisements and fashions play an important role in determining taste and preferences.

The other factors affecting demanded of a consumer are :

(a) Size and Composition of population : Generally, large populations demand more goods. If there are more kids then demand for toys, biscuits, chocolates etc would increase and if there are more elderly people, then demand for sticks, medicines, tonics would increase.

(b) Discrimination in Income Distributions : If income distribution is unequal then demands for luxuries are more for rich and demand for necessities are more for poor.

(c) Weather Condition : Weather condition also influences our demand we cannot take too much tea in summer and too much cold drinks in winter.

Q6. What is a 'demand function'?

Ans. A demand function gives the functional relationship between demand and the factors affecting demand : $D_n = f(P_n, P_1, P_2, \ldots, P_{n-1}, S, Y, T, E)$

Where D_n is an individual demand for commodity n, P_n is the price of the commodity n; $P_1, P_2, \ldots\ldots P_{n-1}$ stands for prices of all other commodities, S Size and distribution of the population, Y is the income and wealth of the consumers, T stands for tastes & preferences and E for exogenous factors such as weather.

Types of Demand Function : There are two types of demand functions :

(i) Individual Demand Function : It looks on those determinants that an individual demand for a commodity

$$D_x = f(P_x, P_y, Y, T)$$

(ii) Market Demand Function : Market demand function incorporates all other factors that influence the demand for a commodity in a market. It includes all factors influencing individual demand function and some other factors also.

$$D_x = f(P_x, P_y, Y, T, U)$$

Here U = Miscellaneous factors such size and composition of the population, weather condition, distribution of income etc.

Q7. What are 'Substitute goods'?

Ans. Substitute goods are goods which can be used in place of each other, for example tea and coffee.

Q8. What sort of relationship exists between the demand for goods and price of the substitute?

Ans. The relationship between the demand for goods and price of the substitute is a direct positive relationship. When the price of the substitute falls the demand for

the substitute would increase and the demand for the goods would fall because people would find the substitute relatively cheaper.

Q9. What are 'Complimentary goods'?

Ans. Complementary goods are goods which are used together, for example, ink, and ink pen, or car and petrol.

Q10. What sort of relationship exists between the demand for goods and price of complementary goods?

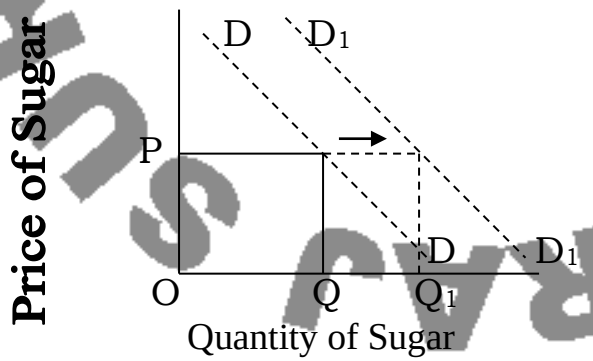
Ans. The relationship between the demand for goods and the price of the complementary goods in inverse. When the price of the complementary goods falls its demand would increase and the demand for the goods would also increase as it is going to be used along with the complementary goods.

Q11. How does the demand for a goods change with changes in the income of the individual?

Ans. In case of normal goods, a rise in income leads to an increase and a fall in income leads to a decrease in their demand. In case of inferior goods however this may not happen and we find their demand falling with increase in income. In case of necessitates the demand may at first increase with increase in income but after reaching a certain limit it may not increase any further. In case of some inexpensive food items like salt the demand may remain unaffected by changes in income.

Q12. What do you think would be the effect on the demand curve for sugar of an increase in the money income of a consumer ? (draw diagram).

Ans. With increase in the money income of a consumer the demand curve for sugar would shift to the right and more sugar would be demanded at a given price.



If at price OP earlier OQ amount of sugar was being demanded, now OQ_1 amount of sugar would be demanded.

Q13. Explain the law of demand. Why does the law of demand operate?

Or

Q Give reasons behind downward slope of the demand curve.

Or

Q Why does a Consumer buy more of a commodity at a lower price and less of it at a higher price?'

Or

Q Demand curves are downward sloping. True or False, explain.

[Eco. (H) I Sem. 2011]

Ans. The law of demand states that the quantity of a commodity demanded varies inversely with its price, other determinants of demand remaining unchanged, which means there exists inverse relationship between the demand for the commodity and its price. The law of demand is valid only if all the other factors effecting the demand are held constant.

Reasons Behind the Downward Slope of the Demand Curve : The demand curve obeys the law of demand and slopes downward mainly due to the following reasons :

(i) **Law of Diminishing Marginal Utility :** Law of diminishing marginal utility was formulated by the Marshall and it states that with successive increases in the units of consumption of a commodity, every additional unit of that commodity gives lesser satisfaction to the consumer. A consumer gets maximum satisfaction when the price of a commodity is equal to its marginal utility. As more units are bought their marginal utility diminishes. Consequently, a consumer will buy more and more for each successive unit.

(ii) **Income Effect :** Income effect is a part of the price effect. When the price of a commodity falls, real income of the individual increases and as a result more of the goods will be bought and his demand increases. This part of the increase in demand due to increase in real income is called the income effect of the price change.

(iii) **Substitution Effect :** Substitution effect is also a part of the price effect. When the price of a commodity falls, it becomes relatively cheaper than its substitutes. So people who were consuming the other goods would now start consuming the commodity whose price has fallen as a result its demand increases. This increase in demand is called the substitutions effect of price change.

Note : The reasons for the downward slope of the demand curve is the inverse relationship between price and demand. The explanation of this is in terms of the price effect which consists for two parts : Income effect and substitution effect.

Price effect = Income effect + Substitution effect

(iv) **Size of Consumer Group :** When the price of a commodity falls, many consumers who were not buying it at its previous price begin to purchase it. Consequently, demand extends. Conversely, when the price rises, some of the consumers will withdraw from the market and thus demand will fall. In this way, change in price is followed by change in the size of consumer group which in turn, will influence the total demand for the commodity.

(v) **Different Uses :** Many goods have several uses, when the price of the commodity increases it is used only for most important applications this will shrink the demand, whereas with the fall in price the commodity can be used for less useful applications this will increase the demand.

Note : Law of diminishing marginal utility, Size of consumer group and Different uses of a commodity are called *traditional approach* whereas Income effect & substitution effect are called *modern approach*.

Q14. Explain the exceptions to the law of demand. Are 'Giffen Goods' an exception to this law? Discuss.

Ans. Exceptions to the Law of Demand : When with increase in price the demand increases and not falls for the goods it is known as exception to the law of demand. The following exceptions have been found to the law of demand :

(i) Giffen goods : Giffen had observed that an increase in the price of bread led to an increase in its demand by nineteenth century English peasants. The reason for this was that these peasants were having a diet of bread and meat with increase in the price of bread they could not afford to have meat. In order to maintain their intake of food they increased their demand for bread. These inferior goods having a large negative income effect to overcome the normal substitution effect behave in this manner and are called giffen goods.

(ii) Goods of Status : Veblen considers the case of diamonds. With increase in the price of diamonds we find their demand increasing because of the prestige attached to the possession of diamond increases. In this case also the individuals demand curve would be upward sloping.

(iii) Ignorance : Sometimes out of ignorance, the consumers feel that a good is worthless if its price is low and so purchase very little quantity of the same. But if the same good is priced high it will command more clientele.

(iv) Expectation of rise or fall in price in future : People sometimes purchase the things more than their need because of the fear of rise in prices of the commodities the reverse also holds.

(v) Emergency : In case of emergency like flood, curfew, drought, famine, war etc. the households do not behave in a normal way and consequently law of demand fails to influence here.

(vi) Change in Fashion : A commodity in fashion will have more demand, even if, price is high. Conversely, if it is out of fashion, it will have no demand howsoever low the price may be.

Q15. What are the assumptions under which law of demand operates?

Ans. Assumptions of law of demand means other things being constant. By other things we mean factors other than price which influence the demand for a commodity. They should not change during the operation of law of demand. The law of demand is valid only when the following assumptions are true :

(i) There should be no change in the price of related goods (substitutes and complementary)
(ii) There should be no change in the income of the consumer.
(iii) There should be no expectation of change in price.
(iv) There should be no change in the taste and preferences of the consumers.
(v) All the units of the goods should be homogeneous.
(vi) Commodity should be a normal good.

Q16. Does the existence of 'inferior goods' necessarily imply an exception to the law of demand?

Ans. The existence of inferior goods does not imply an exception to the law of demand. For inferior goods the income effect of price change is negative and the substitution effect is positive. If the negative income effect is less in magnitude then the positive substitution effect, the price effect would be positive and the inferior goods would just behave like any other goods, i.e. as a result of fall in price its demand would increase and vice versa. But if the negative income effect of any inferior goods would be higher in magnitude than the positive substitution effect, the price effect would be negative and the inferior goods are not exceptions to the law of demand. If a large fraction of the total expenditure of the negative income effect to overweigh the positive substitution effect and the inferior goods then would behave as an exception to the law of demand.

Q17. Normally a household will not buy a second hand scooter even if the price of scooter falls. How, thus do we get a downward sloping market demand curve for scooters?

Ans. We know that though an individual may not buy a second hand scooter even if the price of scooter falls but there may be some individuals who could not afford to even buy a second hand scooter earlier and now with a fall in their price they can afford it, therefore, the number of consumers of the second hand scooters increases with a fall in their price leading to an increase in market demand at a lower price. Thus the market demand curve for scooter would be downward sloping.

Q18. If the prices of salt and cigarettes rise by 10%, would the quantity demanded of these commodities in the market be affected similarly? Explain.

Ans. Salt is a commodity with inelastic demand and a 10% change in prices may not bring about any change in quantity demanded but cigarettes are a luxury, they have a relatively elastic demand so we would find reduction in demand as a result of an increase in its price.

Q19. What is a demand schedule ?

Ans. Tabular presentation of demand at various price levels is called a demand schedule. The schedule which other things remaining constant, expresses the relation between different quantities of the commodity demanded at different prices. Demand schedule is of two types :

(i) **Individual Demand Schedule :** Individual demand schedule is defined as the quantities of a given commodity which a consumer will buy at all possible prices at a given moment. For example :

Price (Rs.)	Quantity Demanded
10	50
20	40
30	30
40	20
50	10

(ii) **Industry or Market Demand Schedule :** Market demand schedule shows total demand of all the consumers in the market at different prices of the commodity. Market demand curve can be derived from individual demand curves by their lateral summation. For example :

Price	A's Demand Q_A	B's Demand Q_B	Market Demand $Q_A + Q_B$
10	40	50	90
20	30	40	70
30	20	30	50
40	10	20	30

Q20. What is demand curve?

Ans. Graphical presentation of demand at various price levels forms the demand curve. It expresses the relationship between different quantities demanded at different prices. According to Leftwitch, "The demand curve represents the maximum quantities per unit of time that consumers will take at various prices." Like demand schedule, demand curve can also be of two types :

(i) Individual Demand Curve,

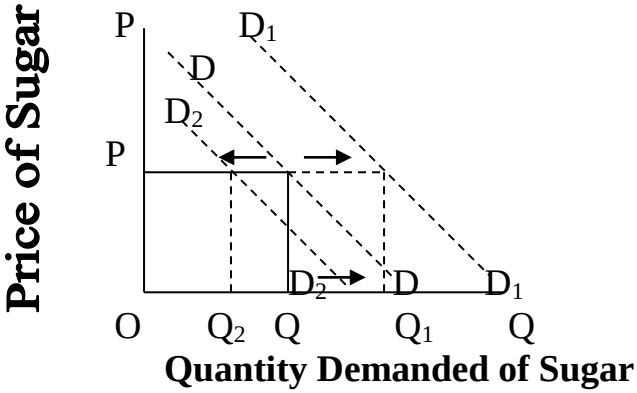
(ii) Market Demand Curve.

Q21. Write short note on 'Shift of demand curve'.

Or

Q Discuss the factors responsible for shifts in the demand curve.

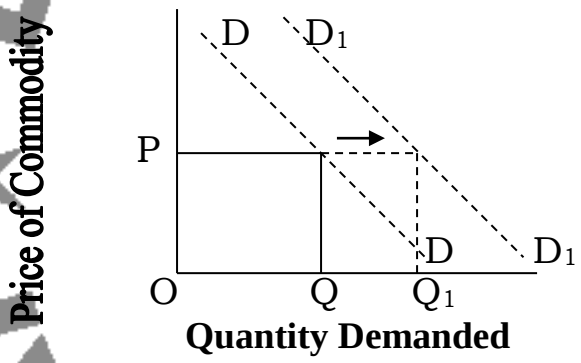
Ans. It refers to increase or decrease in demand at the same price due to change in other determinants of the demand curve. In this case entire demand curve shifts upward or downwards of the original curve. This type of change takes place when demand changes due to change in factors other than price, such as change in income, price of related goods, fashion etc. In such a case a shift takes place in the demand curve. It is also known as increase or decrease in demand. When the demand changes due to change in factors other than price, the demand curve shifts rightward (when demand increases) or leftword (when demand falls), it is called shift in demand curve. As shown below in the diagram and the demand schedule the demand is changing without change in the price of the commodity :



Demand Schedule

Price/Kg of Sugar (Rs)	Money income of the consumer (Rs)	Demand for Sugar
20	4000	2
20	4500	3
20	5000	5
20	3500	1

Increase in Demand : In case of increase in demand the demand curve shifts to its right as shown below :

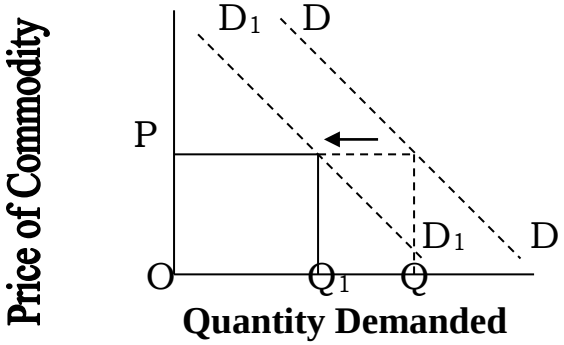


We can see that at the same price OP the quantity demanded increased from OQ to OQ_1.

Factors Causing Increase in Demand : An increase in demand takes place due to following reasons :

(i) Increase in consumer's income,
(ii) Increase in price of substitutes,
(iii) Increase in population,
(iv) Decrease in price of complimentary goods,
(v) Change in taste in favour of the commodity
(vi) Expectation is for the prices to increase in future.
(vii) If there is a change in income distribution in favour of the poor.

Decrease in Demand : In case of decrease in demand the demand curve shifts to its left as shown below :



We can see that at the same price OP the quantity demanded decreased from OQ to OQ_1.

Factors Causing Decrease in Demand : Decrease in the demand may occur due to the following reasons :

(i) Decrease in consumer's income,
(ii) Decrease in price of substitutes,
(iii) Decrease in population,
(iv) Increase in price of complimentary goods,
(v) Change in taste against the commodity,
(vi) Expectation is for the prices to fall in future,
(vii) If there is a change in income distribution in favour of the rich.

Q22. Explain Extension and Contraction of demand (Movement along a demand curve).

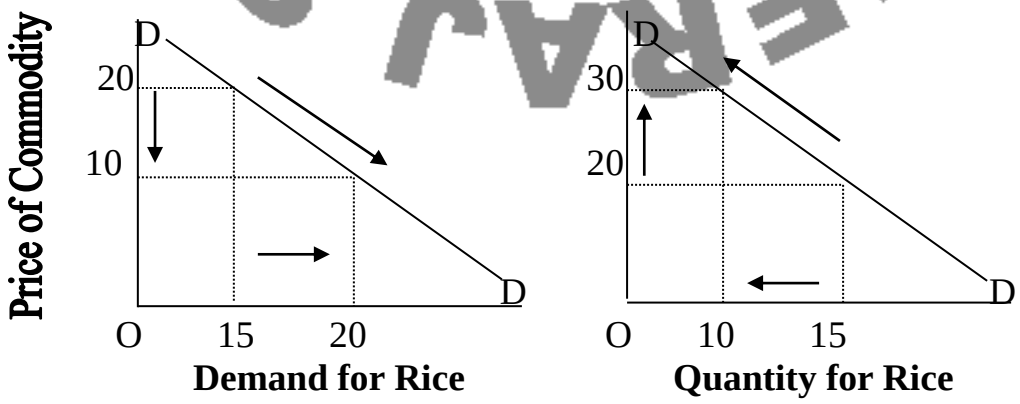
Ans. When quantity demanded of a commodity changes because of change in its price we call it Extension or Contraction of Demand or Movement along the same demand curve because in this case demand curve does not change. That is, When demand rises due to fall in price for a commodity, it is called expansion of demand and when demand falls due to rise in price for a commodity, it is called contraction of demand.

Extension of demand

Price of Rice (Rs/Kg)	Demand for Rice (Kg)
20	15
10	20

Contraction of demand

Price of Rice (Rs/Kg)	Demand for Rice (Kg)
20	15
30	10



Here Price falls from 20 to 10 and Demand rises from 15 to 20.

Here Price rises from 20 to 30 and demand falls from 15 to 10.

Q23. Differentiate between shift of the demand curve and movement along the demand curve.

Ans.

Shift of the demand curve	Movement along the demand curve
1. When at the same price OP more quantity is demanded or less quantity is demanded without rise in price.	When at a lower price more is being demanded or at a higher price less is being demanded.
2. Demand changes due to factors other than price.	Demand changes due to price other factors are constant.
3. When demand increases due to other factors it is known as increase in demand.	When demand increases due to price it is known as expansion in demand.
4. When demand decreases due to other factors it is known as decrease in demand.	When demand decreases due to price it is known as contraction in demand.

Q24. What is meant by composite demand?

Ans. When a commodity can be put to several uses, it is said to possess composite demand. For example, the demand for milk is a composite demand because milk can be used for preparing butter, cheese, curd or sweets.

Q25. Explain the concept of joint demand?

Ans. When two or more than two goods are demanded together to satisfy a particular want, the demand is said to be joint demand. For example, land, labour and capital join together to produce a commodity and hence the demand for factors of production is a joint demand.

Q26. Why at least one of the goods that a consumer consumes must have a downward sloping demand curve? Explain. **[Eco. (H) I Sem. 2015]**

Supply

Q27. What is meant by 'supply' ?

Ans. Supply by an individual seller is the quantity of a commodity that he is willing and able to sell in the market in a given period of time at a given price all other factors being held constant. According to Prof. Thomas, "The supply of goods is the quantity offered for sale in a given market at a given time at various places."

Q28. Distinguish between Supply and Stock.

Ans. The term *Supply* refers to the amount of a good or service that the producers are willing and able to offer in the market during a period of time at various places. *Stock* on the other hand, is the total volume of a commodity which can be brought into the market for sale at a short notice. For perishable commodities, like fish and fruits, supply and stock are same, because whatever is in stock must be disposed off. But for non-perishable commodities like furniture supply and stock are different because if prices are not favourable a part of the stock can be withheld and not offered for sale. On the other hand, if the prices are favourable large quantities are offered by sellers from their stock. Thus whereas stock is fixed, supply is a flow.

Q29. Explain the law of supply.

Ans. The law of supply states :

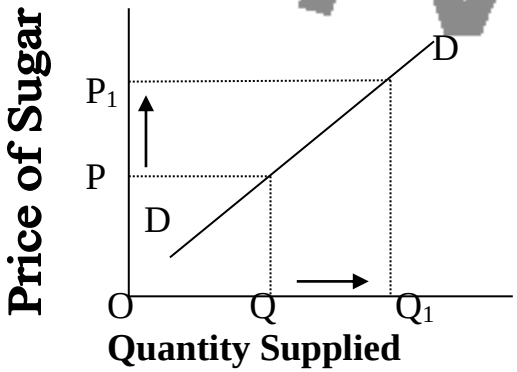
"The quantity of a commodity supplied varies directly with the price, other determinates of supply remaining unchanged." Supply of a commodity is functionally related to its price. The law of supply relates to this functional relationship between price of a commodity and its supply. In contrast to the change in quantity demanded in response to the changes in price, the quantity supplied generally varies directly with price. That is, the higher the price, the larger is the quantity supplied.

Q30. What is a 'supply schedule' and Supply Curve?

Ans. A supply schedule is a tabular presentation of quantity supplied at various price levels. A hypothetical supply schedule of sugar is given as under

Price of Sugar (Rs. Per Kg.)	**Quantity Supplied (Kg. Per Month)**
10	100
11	150
12	190
13	220
14	240
15	250

Supply Curve : A supply curve reflects graphically the relationship between the price and quantity supplied of a commodity. It is quiet evident from the supply schedule given above and from the supply curve given below that more is supplied as higher price and less is supplied at lower price.



Q31. What are the factors determining the supply of a commodity?

Ans. The supply of a commodity in any market is influenced by a number of factors called determinants of supply. The important factors determining supply of a commodity are discussed as under :

(i) **The Price of the Commodity :** Other things being constant, the supply of a product depends upon its price. Higher the relative price of a product, the greater the quantity of it that will be supplied. This is because goods and services are produced by a firm in order to earn profits, and ceteris paribus, profits rise if the price of its product rises.

(ii) **Price of Related Commodities :** It is not only the price of the concerned product but also the prices of related products as substitutes and complements which influence the desire to supply. If the price of a substitute goes up (other things being same), firms will be tempted to divert their resources to the production of that substitute. It implies that if price of Y rises, the quantity supplied of X will fall. For example, if price of wheat rises, farmers may shift land to wheat production away from corn and soyabean.

On the other hand, if the price of a complementary product goes up, the supply of the product in question will also rise ceteris paribus.

A related good may also be a good that can be produced with the firm's existing factors of production. For example, a firm produces leather belts. The firm's managers learn that leather pouches for smart phones are more profitable than belts. The firm might reduce its production of belts and begin production of cell phone pouches based on this information.

(iii) **Price of Factors of Production :** Factors of production include land, labour, energy and raw materials. A rise in price of a particular factor shifts the supply curve inwards as sellers are less willing or able to sell goods at existing prices. For example if the wage rate of labour increases a seller may reduce his supply because of the increased costs of production. The seller is likely to raise the price he charges for each unit.

(iv) **State of Technology :** The supply of a particular product depends upon the state of technology also. Inventions and innovations are capable of improving quantity as well as quality of products for the given resources. They also lead to obsolescence and old products are replaced by new ones. This tends to increase the quantity supplied of some products and to reduce the quantity supplied of other products if they are displaced.

(v) **Future Expectations :** Sellers expectations concerning future market condition can directly affect supply. If the seller believes that the demand for his product will sharply increase in the foreseeable future the firm owner may immediately increase production in anticipation of future price increases. The supply curve would shift out. Note that the outward shift of the supply curve may create the exact condition the seller anticipated, excess demand.

(vi) Government Policy : Government intervention can have a significant effect on supply. Government interventions can take many forms including environmental and health regulations, hour and wage laws, taxes, electrical and natural gas rates and zoning and land use regulations. The production of a commodity may be subject to the imposition of commodity tax such as excise duty, sales tax and import duties. Any increase in such taxes will raise the cost of production and so the quantity supplied of that commodity will increase only when its price in the market rises, otherwise supply will reduce. Subsidies on the other hand, reduce the cost of production and thus provide an incentive to the firm to increase supply.

(vii) Number of Suppliers : The market supply curve is the horizontal summation of the individual supply curves. As more firms enter the industry the market supply curve will shift out driving down the prices.

(viii) Business Policy : The prospects of supply depend a great deal on the business policy pursued by the firm. Some firms believe in higher margin of profit and lower turnover while others believe in lower margin of profit and higher turnover. Particularly, if a firm is more interested in increasing its turnover it would be more responsive to forces which are helpful for increasing supply rather than restraining it.

Q32. What is meant by supply function?

Ans. A Supply function shows the functional relationship between the supply of a commodity and various factors affecting it. Supply function can be expressed mathematically as under :

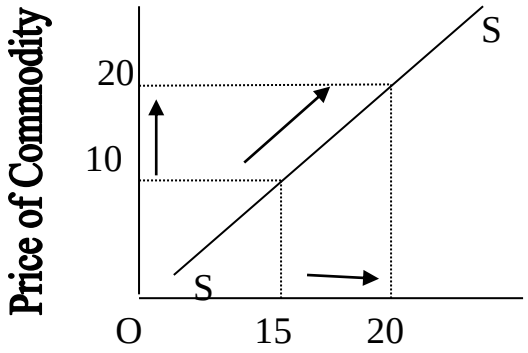
$S_X = f(P_X, P_R, P_F, S, F, G_P, N_F, B)$

Where S_X = Supply of the Commodity X, P_X = Price of the Commodity X,
P_R = Price of Related commodities, P_F = Price of Factors of Production,
S = State of Technology, F = Future Expectations,
G_P = Government Policy, N_F = Number of Firms,
B = Business Policy,

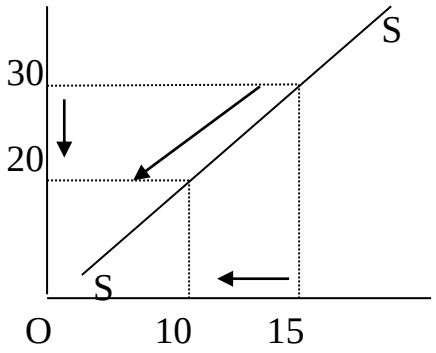
Q33. Explain Expansion and Contraction of Supply (Movement along a Supply curve).

Ans. When quantity supplied of a commodity changes because of change in its price we call it Expansion or Contraction of supply or Movement along the same supply curve because in this case supply curve does not change. That is, When supply rises due to increase in price for a commodity, it is called expansion of supply and when supply falls due to fall in price for a commodity, it is called contraction of supply.

Expansion of Supply		**Contraction of Supply**	
Price of Rice (Rs/Kg)	Supply of Rice (Kg)	Price of Rice (Rs/Kg)	Supply of Rice (Kg)
10	15	30	15
20	20	20	10



Here Price rises from 10 to 20 and Supply rises from 15 to 20.



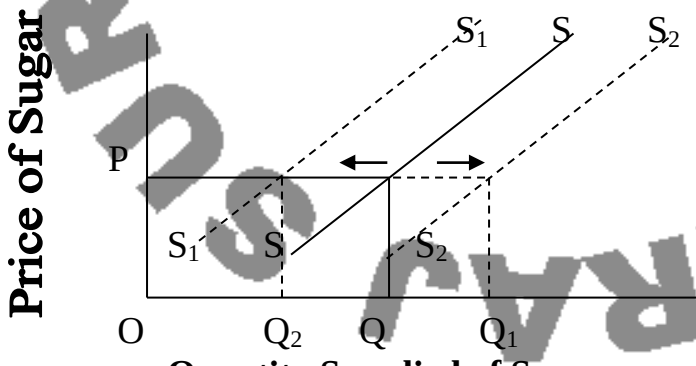
Here Price falls from 30 to 20 and Supply falls from 15 to 10.

Q34. What is meant by Increase or Decrease in Supply.

Or

Q Write short note on 'Shift of supply curve'.

Ans. Shift of supply curve refers to increase or decrease in supply at the same price due to change in other determinants of the supply curve. In this case entire supply curve shifts upward or downwards of the original curve. This type of change takes place when price changes due to change in factors other than price, such as change in price of related goods, state of technology, cost of production and government policy etc. In such a case a shift takes place in the supply curve. It is also known as increase or decrease in supply. When the supply changes due to change in factors other than price, the supply curve shifts rightward (when supply increases) or leftward (when supply falls), it is called shift in supply curve. As shown below in the diagram and the supply schedule the supply is changing without change in the price of the commodity :



Supply Schedule

Price/Kg of Sugar (Rs)	Supply of Sugar (kg)
20	2
20	3
20	5
20	1

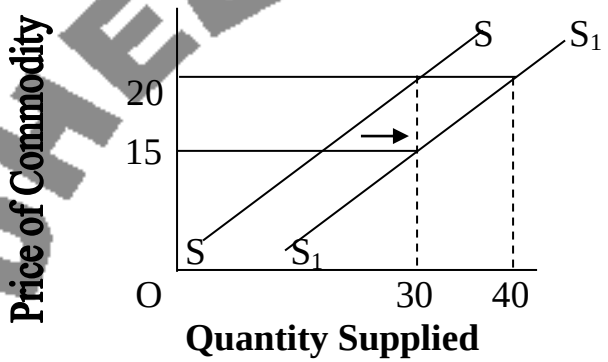
Shifts in supply curve or change in supply can be of two types :

(i) Increase in Supply,

(ii) Decrease in Supply.

Increase in Supply : Increase in supply means that, more quantity is supplied at same price or same quantity is supplied at lower price. Increase in supply without change in price occurs due to favourable changes in factors other than price of the commodity. In case of increase in supply the supply curve shifts to its right as shown below by the supply schedule and the diagram :

Supply Schedule		New Supply Schedule	
Price	Quantity	Price	Quantity
20	30	20	40
		15	30



We can see that at the same price of Rs. 20 the quantity supplied increased from 30 units to 40 units and 30 units are supplied at a reduced price of Rs. 15

Factors Causing Increase in Supply : An increase in supply takes place due to following reasons :

(i) Improvement in state of technology,

(ii) Decrease in price of substitutes,

(iii) Increase in number of suppliers,

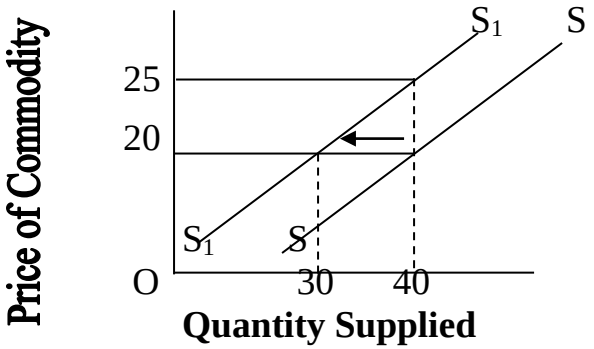
(iv) Decrease in price of complimentary goods,

(v) Decrease in tax

(vi) Decrease in cost of production.

Decrease in Supply : Decrease in supply means that, less quantity is supplied at same price or same quantity is supplied at higher price. Decrease in supply without change in price occurs due to unfavourable changes in factors other than price of the commodity. In case of decrease in supply the supply curve shifts to its left as shown below by the supply schedule and the diagram :

Supply Schedule		New Supply Schedule	
Price	Quantity	Price	Quantity
20	40	20	30
		25	40



We can see that at the same price of Rs. 20 the quantity supplied decreased from 40 units to 30 units and 40 units are supplied at a higher price of Rs. 25.

Factors Causing Decrease in Supply : Decrease in supply takes place due to following reasons :

(i) Obsolete in state of technology,
(ii) Increase in price of substitutes,
(iii) Decrease in number of suppliers,
(iv) Increase in price of complimentary goods,
(v) Increase in tax
(vi) Increase in cost of production.

Q35. Give one condition under which a producer may supply more of a commodity at a given price.

Ans. A producer may supply more of a commodity at a given price if the price of the factors of production falls.

Q36. Under what conditions would a producer supply more of a commodity at the same price?

Ans. A producer would supply more of a commodity at the same price under the following conditions.

1. If the goal change from employment maximization to output maximization.
2. If the prices of other commodities falls.
3. If the prices of factors of production fall.
4. If technical progress takes place.

Q37. Differentiate between contraction in supply and decrease in supply.

Ans.

Contraction in supply	Decrease in supply
It happens due to fall in price, i.e., at a lower price less is being supplied	It happens due to factors other than price, i.e., at the same price less is being supplied
There is a downward movement along the same supply curve	There is a backward movement of the supply curve, i.e., supply curve shifts to its left.
Other factors affecting supplies are kept constant.	Other factors affecting supplies are changing.

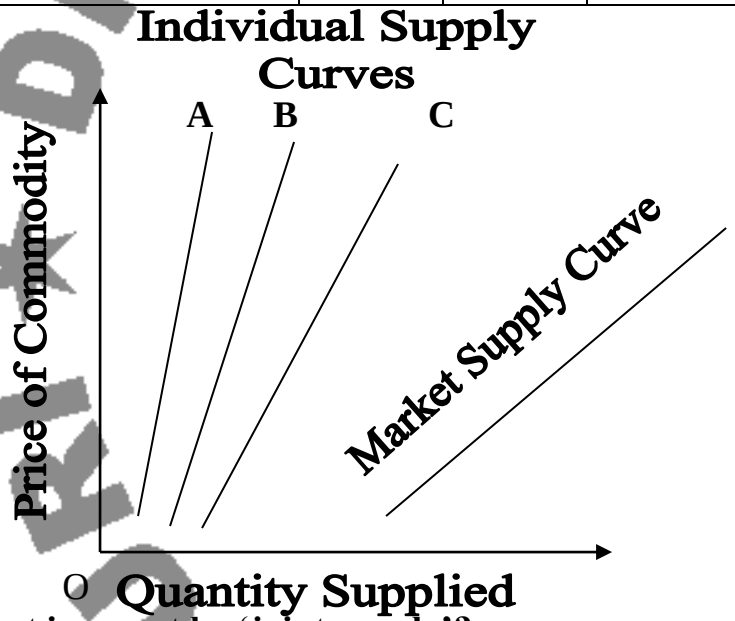
Q38. Explain Individual and Market Supply Schedules.

Ans. Individual Supply Curve : A supply curve which shows the different quantities offered for sale by an individual firm at different prices is known as individual supply curve.

Market Supply Curve : A market supply curve is the addition of individual supply. It reflects the total of various quantities offered for sale by all the individual firms at different prices in a particular time period.

Suppose there are three firms A, B and C in the market for wheat. Individual and market supply schedules as given below :

Price of Wheat Rs. Per Kg.	Individual supply schedules of wheat (kg)			Market Supply Schedules
	A	B	C	A + B + C
1	0	8	10	18
2	4	10	12	26
3	12	14	14	40
4	14	18	16	48
5	16	20	20	56



Q39. What is meant by 'joint supply'?

Ans Joint supply means with changes in supply of one commodity the supply of the other commodity also changes automatically because one commodity is a by product of the other, for example, wheat and hay or meat and skin.

Q40. "A producer's positively sloped supply curve for a commodity represents in one sense a maximum and in another sense a minimum boundary of the producer's intensions." Explain.

Ans. It is true to state that a producer's positively sloped supply curve for a commodity represents in one sense a maximum and in another sense a minimum boundary of the producer's intensions. Because keeping factors other than price constant, producer is not willing to sell more or less quantity of product other than that is corresponding to the given level of price. If he sells lesser quantity than what he is

able to sell at the given price will incur him loses which he won't do so he will not sell lesser quantities that means supply is a minimum boundary for him also he can not increase his supply beyond his capability at the given price so in that sense it represents the maximum boundary for the producer.

Equilibrium

Q41. What is the meaning of 'equilibrium'?

Ans. Equilibrium is the point of stability or state of balance. It is a position in which there is no tendency to change. The equilibrium is found where the supply and demand curves intersect. At the equilibrium price, the quantity of the goods that buyers are willing and able to buy exactly balances the quantity that sellers are willing and able to sell. As in ***Figure 17*** demand and supply curves intersect with each other at point E, where the equilibrium price is P_0 and equilibrium quantity is Q_0.

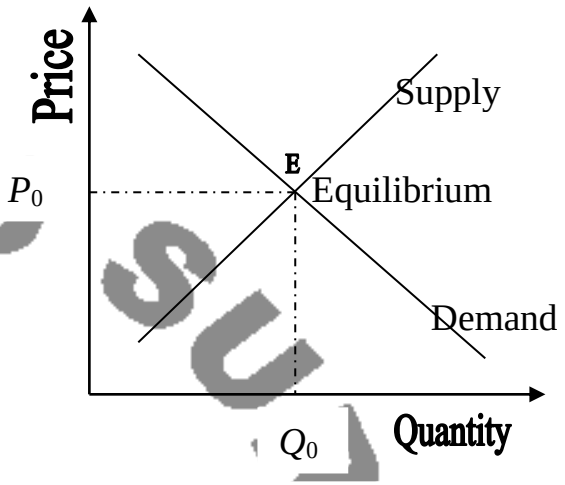


Figure 17 : Equilibrium Point

The equilibrium price is sometimes called the market clearing price because, at this price, everyone in the market has been satisfied : Buyers have bought all they want to buy, and sellers have sold all they want to sell. The following demand and supply schedule will show the determination of equilibrium price :

Price (Rs./Kg)	Demand (Kg./Week)	Supply (Kg./Week)	
10	40	20	Excess Supply
20	35	25	Excess Supply
30	**30**	**30**	**Equilibrium**
40	25	35	Excess Demand
50	20	40	Excess Demand

Q42. What is meant by 'Excess Demand'?

Ans. Excess demand is a situation in which the market demand for a commodity is greater than its market supply, thus causing a shortage in the market which results in rise in the market price of the commodity. Excess demand occurs when the current market price is below the equilibrium price (P*). With excess demand, consumers want to purchase more units of a good than producers want to sell. When price is below equilibrium and the product sells out quickly, competition among consumers,

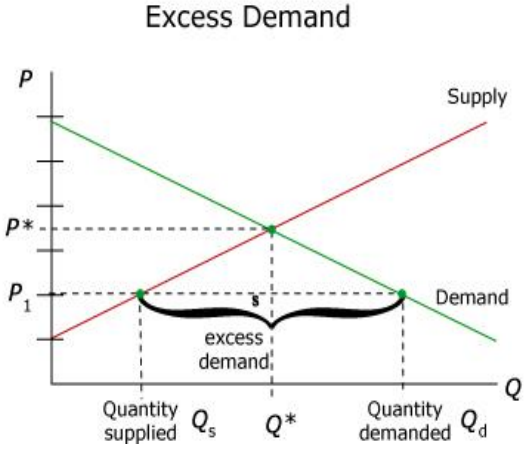


Figure 18 : Excess Demand

along with recognition by producers that they could raise price and still sell all units, leads to upward pressure on prices.

As in ***Figure 18***, we can show excess demand as the horizontal distance between the demand and the supply curves at a price below the equilibrium price. Looking at the graph, notice that the current market price, P_1, is below the equilibrium price, P*. Also at P_1 the quantity demanded, Q_d, is much greater than the quantity supplied, Q_s. The difference between Q_s and Q_d is excess demand.

Q43. What is meant by 'Excess Supply'?

Ans. Excess supply is a situation in which the market supply for a commodity is greater than its market demand, thus causing a surplus in the market which results in fall in the market price of the commodity. Excess supply occurs when the current market price is above equilibrium. With excess supply, producers cannot sell as much of their product as they would like at that price.

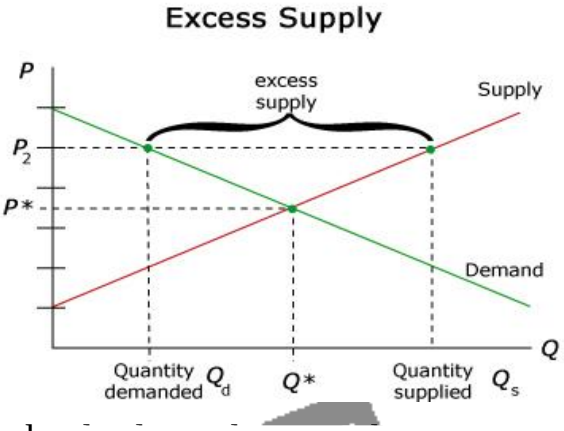


Figure 19 : Excess Supply

Competition among producers to increase sal n prices.

We can show excess supply on a graph as the horizontal distance between the demand and the supply curves at a price above the equilibrium price. Looking at the ***Figure 19***, notice that the current market price, P_2, is above the equilibrium price, P*. You can see that at P_2 the quantity supplied, Q_s, is much greater than the quantity demanded, Q_d. The difference between Q_d and Q_s is excess supply.

Q44. Explain the effect of Change in demand on the equilibrium price and quantity.

Ans. To answer this question let us assume that initially demand and supply are intersecting with each other at point E where P_1 is the equilibrium price and Q_1 is the equilibrium quantity as shown in ***Figure 20***.

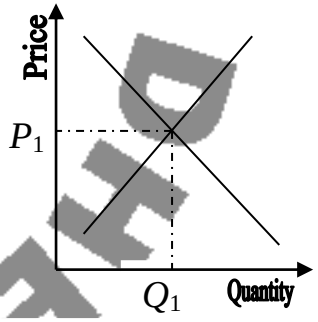


Figure 20 : Equilibrium

Now consider how changes in demand affect equilibrium price and quantity. An increase in demand corresponds to a rightward (or upward) shift of the demand curve.

An increase in demand for a good can result from such events as an increase in consumer income, a decrease in the price of a complement good, or an increase in the price of a substitute good.

The two figures below illustrate an increase in demand. Notice in ***Figure 21*** that an increase in demand causes the equilibrium price to increase from P_1 to P_2, and the equilibrium quantity sold to increase from Q_1 to Q_2.

We can see that if supply is relatively elastic, as shown in the left graph, an increase in demand leads to a relatively small increase in the equilibrium price but a relatively large increase in quantity sold. In the extreme case of a perfectly elastic

(horizontal) supply curve, an increase in demand causes no change in price; the equilibrium quantity sold simply increases.

If supply is relatively inelastic, as shown in the right graph, the increase in price is relatively large, and the increase in quantity sold is relatively small. In the extreme case of a perfectly inelastic (vertical) supply curve, an increase in demand causes no change in quantity sold; the equilibrium price simply rises.

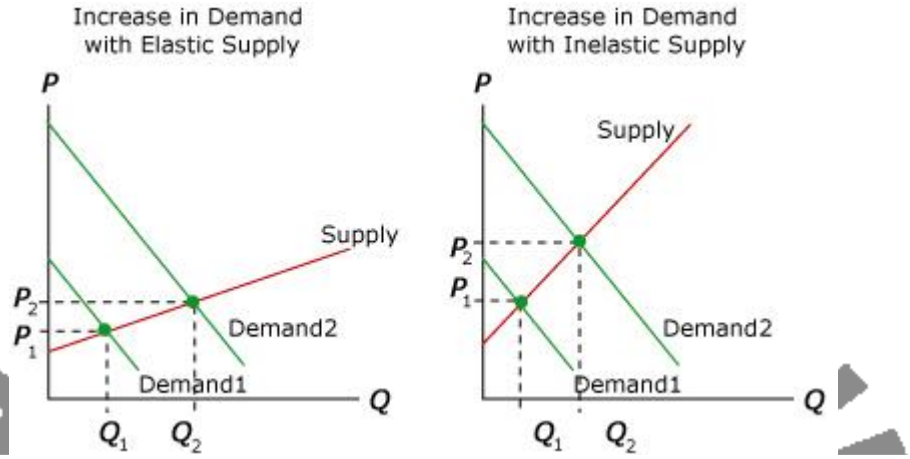


Figure 21 : Effect of Changes in demand on Equilibrium

Decrease in demand : A decrease in demand corresponds to a leftward (or downward) shift of the demand curve. You can use the same two figures above to illustrate a decrease in demand and the resulting effects on price and quantity sold. Simply re-interpret Demand2 as the initial demand curve, and let Demand1 represent the new level of demand. Notice on the graphs that a decrease in demand causes the equilibrium price to decrease from P_2 to P_1 and quantity sold to fall from Q_2 to Q_1.

We can see that if supply is relatively elastic, as shown in the left graph, a decrease in demand leads to a relatively small decrease in the equilibrium price but a relatively large decrease in quantity sold.

If supply is relatively inelastic, as shown in the right graph, the decrease in price is relatively large, and the decrease in quantity sold is relatively small.

Q45. Explain the effect of Change in 'supply' on the equilibrium price and quantity.

Or

Q How do equilibrium price and equilibrium quantity respond to changes in prices of raw materials and changes in technology? Explain diagrammatically.

Ans. To answer this question let us assume that initially demand and supply are intersecting with each other at point E where P_1 is the equilibrium price and Q_1 is the equilibrium quantity as shown in ***Figure 20*** above.

An increase in supply corresponds to a rightward shift of the supply curve. Factors that cause an increase in supply include a decrease in the costs associated with producing a good or an increase in the number of companies producing the good.

The two figures below illustrate an increase in supply. Notice in ***Figure 22*** that an increase in supply causes the equilibrium price to fall, from P_1 to P_2, but the equilibrium quantity sold to increase from Q_1 to Q_2.

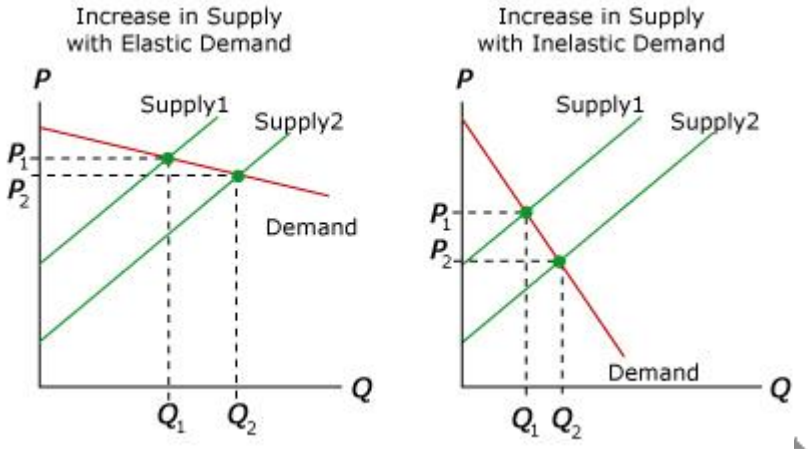


Figure 22 : Effect of Changes in supply on Equilibrium

If the demand for a good is relatively elastic, as shown in the left graph, an increase in supply causes a relatively small decrease in price and a relatively large increase in quantity sold. In the extreme case of a perfectly elastic (horizontal) demand curve, an increase in supply causes no change in price; the equilibrium quantity sold simply increases.

If demand is relatively inelastic as shown in the right graph, an increase in supply leads to a relatively large decrease in the equilibrium price, but a relatively small increase in quantity sold.

Previous Years Theory Questions

Q1. Can Am Airlines is selling tickets for Rs. 500 as against the regular fare of Rs. 5,000. How would you explain that? **[Eco. (H) 2007]**
[Hint : Excess Supply**]**

Q2. With the help of demand and supply analysis, illustrate the impact of rising gold prices on equilibrium quantity and prices of gold jewellery. **[Eco. (H) 2006]**
[Hint : Increase in Supply**]**

Q3. State whether true or false and explain : **[Eco. (H) I Sem. 2012]**
An increase in the demand for pencils raises the quantity of pencils demanded but not the quantity supplied.

Q4. "Why the quantity demanded for a good may either increase or decrease with increase in its price?" Explain using the concept of income and substitution effects. **[Eco. (H) I Sem. 2014]**

Numerical Problems

Q1. If demand function is given by $Q_D = 50 - 0.5p$ and supply function is $Q_s = -10 + p$, then find out equilibrium price and equilibrium quantity.

Q2. What is the equilibrium market price and quantity if demand and supply curves are as follows :
Demand : $P = 100 - 2q$
Supply : $P = 16 + 5q$

Q3. If demand function is given by $Q_D = 380 - 20P$ and supply function is $Q_S = -120 + 30P$, then find out equilibrium price and equilibrium quantity.